

PRODUCT DATA SHEET

Afrox C276



Afrox C276 is an MMA electrode for the manufacture and repair of hot forming tools and for oxidation and corrosion resistant overlays. It is used for the manufacture and repair of drop forging dies, hot forming dies, pump impellers, retorts and valves. Not only can it be used for overlays, but it can be used for joining special alloys such as Hastelloy® C276 to itself or to stainless steel.

Afrox C276 is a heavily coated electrode with approx. 170% metal recovery. The electrode has excellent welding characteristics and de-slagging properties.

Alloy C276 has high resistance to corrosion in a wide range of acids and salts under oxidizing and especially reducing conditions. These include hydrochloric and hydrofluoric acids, hypochlorites, chlorides and wet chlorine gas, sulphuric, phosphoric and many organic acids. Exceptional resistance to crevice corrosion and pitting in seawater and chloride-induced stress corrosion cracking (superior to alloy 625). High temperature stability is limited by intermetallic phase

formation. In addition to fabrication welds in alloy C276, these consumables have good tolerance to dilution by most ferrous and high nickel alloys, and are suitable for surfacing and dissimilar welds which exploit the corrosion resistance, strength and toughness. Excellent properties to below -196°C allow its use for welding 5-9% Ni cryogenic installations.

Applications

Applications include pumps, valves, pipework and vessels for use in aggressive environments in chemical process plants; also in equipment for flue gas desulphurisation and critical equipment in offshore oil and gas production.

Storage and Re-baking

Re-dry electrodes for 2 hours at 250°C.

Storage of re-dried electrodes at 50–200°C in holding oven or heated quiver: no limit, but maximum 6 weeks recommended.

Materials to be Welded

Wrought

ASTM	DIN
UNS N10276	2.4819 (NiMo16Cr15W)

Cast

A494 CW-12MW
A743/A744 CW-12M
2.4883 (G-NiMo16Cr)

Proprietary

Hastelloy® alloy C-276 (Haynes)
Inco alloy C-276 (Special Metals)
Nicrofer® 5716hMoW (VDM)

Classifications

AWS	A5.11	ENiCrMo-4 (nearest)
EN	14172	ENi6276 (NiCr15Mo15Fe6W4 nearest)

Typical Chemical Analysis (All weld metal)

% Carbon	0,03 max	% Nickel	Bal.
% Sulphur	0,03 max	% Molybdenum	14,5
% Phosphorous	0,04 max	% Tungsten	4,2
% Chrome	14,5	% Iron	6,5

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Typical Mechanical Properties (All weld metal in the as welded condition)

0,2% Proof Stress	520 MPa
Tensile Strength	710 MPa
% Elongation on 5d	27
Hardness*	220 - 230 HB

*Work hardens to about 375-420 HB

Packing Data and Operating Current (AC/DC+)

Diameter (mm)	Electrode Length (mm)	Current (A)	Pack Mass (kg)	Item Number
2,5	350	110 - 125	5,0	W075962
3,2	350	140 - 155	5,0	W075963
4,0	350	170 - 185	5,0	W075964

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